

82599

Quadrupole Effect in the Nuclear Magnetic  
Resonance in the  $\text{NaNO}_3\text{-AgNO}_3$  Mixed Crystals

S/056/60/039/01/07/029  
B006/B070

account of rhombohedral symmetry, the latter show a splitting of the  $\text{Na}^{23}$  line into a central line and two symmetrically situated satellites. To investigate the influence of impurities on the  $\text{Na}^{23}$  spectrum, the authors used the above mentioned mixed crystals where  $\text{Ag}^+$  replaces the  $\text{Na}^+$  ion. By the investigation of the line spectrum it was found that the breadth of the satellite lines depended on the orientation of the crystal in the magnetic field (4400 oe). For  $\varphi = 0$  and  $90^\circ$  ( $\varphi$  - angle between the symmetry axis and  $\vec{H}$ ), the satellites and the central line had a breadth of the order of 2-2.5 kc/sec which corresponds to a dipole-dipole width. For intermediate positions, the satellites became broader but their intensity remained constant and independent of the position. This effect may be explained by the mosaic structure. Fig. 1 shows the nuclear magnetic resonance spectra for pure  $\text{NaNO}_3$ ,  $\text{NaNO}_3 + 0.5\% \text{AgNO}_3$  and  $\text{NaNO}_3 + 2.1\% \text{AgNO}_3$  for  $\varphi = 90^\circ$ . In Fig. 2 the relative satellite intensity is shown as a function of the  $\text{AgNO}_3$  content. The intensity diminished rapidly with increasing  $\text{Ag}^+$  concentration. For a concentration of 0.021 (21  $\text{Ag}^+$  ions per 1000  $\text{Na}^+$ ) the satellites completely disappeared. The

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Quadrupole Effect in the Nuclear Magnetic  
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B006/B070

fact that the satellites show no broadening makes possible an analysis of the experimental results by the method of the critical sphere. It may be rightly assumed that no impurity ions ( $\text{Ag}^+$ ) penetrate into the critical sphere. From this it is concluded that the critical sphere contains  $138 \text{ Na}^+$  ions and has a radius of about  $13 \text{ \AA}$ . There are 2 figures and 5 references: 2 Soviet, 1 American, and 1 Japanese. ✓

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors of the Academy of Sciences of the USSR)

SUBMITTED: February 19, 1960

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83170

S/056/60/039/002/007/044  
B006/B056

24.1900

AUTHOR:

Lemanov, V. V.

TITLE:

Quadrupole Effects of Second Order in Sodium Nitrate

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 2 (8), pp. 260-261

TEXT: Pound was the first to investigate the nuclear-magnetic resonance of Na<sup>23</sup> in NaNO<sub>3</sub>; the spectrum observed by him consisted of three lines: a central and two symmetric satellite lines. This spectrum is due to quadrupole interaction of the Na<sup>23</sup> nuclei with the electric field in the crystal lattice. Pound also gave an expression (in first perturbation-theoretical approximation) for the line splitting  $\Delta\nu$ , which holds when the quadrupole interaction of the nuclei is very small compared with their interaction with the external magnetic field. In NaNO<sub>3</sub> this is, however, not the case, as shown by the author of the present report. For the shift of the central line he gives a formula in second perturbation-theoretical approximation:

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Quadrupole Effects of Second Order in Sodium Nitrate

$$\Delta\nu_c = \frac{3}{64\nu_0} \left( \frac{e^2 q Q}{h} \right)^2 (1 - 9\cos^2\varphi)(1 - \cos^2\varphi).$$
 Here,  $Q$  denotes the quadrupole moment of Na<sup>23</sup>,  $e q$  - the component of the field gradient in the axis of symmetry, and  $\varphi$  - the angle formed by the axis of symmetry and the magnetic field. In first perturbation-theoretical approximation  $\Delta\nu_c = 0$ . The shift increases with a decrease of the working frequency  $\nu_0$ ; with  $\nu_0 = 5.2\text{Mc/sec}$  and  $4600\text{ oe}$ , the shift, with  $e^2 q Q/h = 334\text{ kc/sec}$ , is between  $+1.0$  and  $-1.8\text{ kc/sec}$ , which may easily be observed experimentally. The experiments carried out by the author by means of a device described in Ref. 3 showed that at  $\varphi = 0^\circ$ , both lines actually coincide, i.e.,  $\Delta\nu_c = 0$ , and at  $\varphi = 42$  and  $90^\circ$  the greatest shifts (with different signs) occur. Within the limits of measuring accuracy, the shifts agree with the values required theoretically. There are 3 references: 1 Soviet and 2 US.

ASSOCIATION:

Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors of the Academy of Sciences USSR)

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Quadrupole Effects of Second Order in  
Sodium Nitrate

SUBMITTED: March 11, 1960

83170

S/056/60/039/002/007/044  
B006/B056

4

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83171

S/056/60/039/002/008/044  
B006/B056

24.7900  
AUTHORS:

Kornfel'd, M. I., Lemanov, V. V.

TITLE:

Nuclear-magnetic Resonance <sup>19</sup> in Plastically Deformed Rock  
Salt

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,  
Vol. 39, No. 2(8), pp. 262 - 264

TEXT: In the present paper, the authors give a short report on measurements of the intensity of the nuclear-magnetic resonance line of  $\text{Na}^{23}$  in plastically deformed rock salt as a function of the degree of deformation. The measurements were carried out on a device of the Pound type. The rock-salt crystals were compressed linearly in the  $[001]$  direction; measurements were carried out on each sample in three different directions of the magnetic field:  $[100]$ ,  $[110]$ , and  $[010]$ . No angular dependence could be found. The Fig. shows, on a logarithmic scale, the relative intensity of the satellite lines as a function of the degree of deformation. It follows herefrom that, as a consequence of compression, the intensity of the satellite lines diminishes. The defects

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Nuclear-magnetic Resonance in Plastically Deformed Rock Salt

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S/056/60/039/002/008/044  
B006/B056

occurring in plastic compression were found to be linear; they are not described as dislocations but as distortion centers. In consideration of this fact as well as of the lacking of a broadening of the absorption lines, the authors, like in the case of impurity crystals, used the model of the critical sphere for calculating the satellite intensities in the case of randomly distributed distortion centers. Thus,  $\ln(J/J_0) \approx -cv_c/v_0$ .  $J$  and  $J_0$  are the satellite intensities in the deformed and undeformed crystal, respectively,  $c$  the distortion-center concentration,  $v_0$  the volume taken up by such a center, and  $v_c$  the volume of the critical sphere. It may be assumed that  $c$  is proportional to the degree of deformation, so that  $\ln(J/J_0)$  would be a linear function of the degree of deformation. The diagram shows that this is actually the case. The authors finally show a possibility of estimating the size of the critical sphere from two relations set up for the field gradients. Thus, the value of  $10^3 \text{ \AA}$  is obtained for the radius of the critical sphere in plastically deformed NaCl. There are 1 figure and 6 references: 2 Soviet, 3 Japanese, and 1 British.

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83171

Nuclear-magnetic Resonance in Plastically  
Deformed Rock Salt

S/056/60/039/002/008/044  
B006/B056

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR  
(Institute of Semiconductors of the Academy of  
Sciences USSR)

SUBMITTED: March 11, 1960

Card 3/3

20701

S/120/61/000/001/039/062  
EO32/E114

9,6000 (1163, 1138, 1160)

AUTHOR: Lemanov, V.V.

TITLE: A Radiospectroscope for Studying Nuclear Magnetic Resonance in Solids

PERIODICAL: Pribery i tekhnika eksperimenta, 1961, <sup>6</sup> No.1, pp.126-128

TEXT: The circuit described by R.V. Pound (Refs.1, 2) is the most widely used in the measurement of nuclear magnetic resonance signals. The basic disadvantage of the Pound arrangement is said to be the fact that voltages of less than 0.1 V cannot be obtained, while in order to reproduce undistorted NMR absorption lines in many solids lower voltages are required. The aim of the present work was to remove this disadvantage and at the same time reduce the noise level of the oscillator. The final form of the oscillator is shown in Fig.2. A minimum voltage in the oscillator circuit of 0.02 V can be obtained. The oscillator has been used in the range 2-15 Mc/s. The sensitivity of the device incorporating this circuit is indicated by Fig.6 which shows the central absorption line due to  $\text{Na}^{23}$  in an  $\text{NaNO}_3$  monocrystal in a field of 4300 oe. The noise factor was found to be 1.2-1.5.

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20701

S/120/61/000/001/039/062  
EO32/E114

A Radiospectroscope for Studying Nuclear Magnetic Resonance in Solids

The modulation amplitude and the time constant of the synchronous detector is the same as in Pound's papers. The signal-to-noise ratio is improved by a factor of 5-7.

There are 6 figures and 7 English references.

ASSOCIATION: Institut poluprovodnikov AN SSSR  
(Institute for Semiconductors, AS USSR)

SUBMITTED: December 5, 1959

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24.7900

1144, 1395, 1155

22130  
S/056/61/040/003/010/031  
B102/B202

AUTHOR: Lemanov, V.V.

TITLE: Nuclear magnetic resonance in elastically deformed rocksalt

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki,  
v. 40, no. 3, 1961, 775 - 779

TEXT: Data on the defects in a test solid may be obtained by a study of the quadrupole effects in nuclear magnetic resonance; the lattice distortions near the defects can be determined from the way the nuclear resonance absorption lines vary. For this purpose, however, one has to know the interrelation between the elastic deformation of the lattice and the additional electric field strength acting upon the nucleus due to the defect. This interrelation can be determined from experiments with nuclear magnetic resonance. R.G. Shulman et al. (Phys. Rev. 107, 953, 1957) made this for In<sup>115</sup> in InSb. This paper presents an analogous study for Na<sup>23</sup> in NaCl. Due to the high symmetry in the undeformed cubic crystal, no field acts upon the nucleus, and nuclear magnetic resonance appears as a

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22130

Nuclear magnetic resonance ...

S/056/61/040/003/010/031  
B102/B202

central line and its satellites which can be observed as one line. The deformation gives rise to a disturbance of the symmetry, a field strength appears, and the resonance absorption lines are split up into their components which should be observable in perfect resolution when the deformation is sufficient. Actually, this effect is very weak, and the lines are only more or less broadened. Shulman introduced the tensor C which interrelates the electric field strength acting upon the nucleus and the elastic stress in the lattice. In this paper, a similar tensor S interrelating the field tensor  $Q$  and the tensor  $\delta$  of the elastic lattice deformation is introduced:

$Q_{\mu\nu} = \sum_{\kappa\lambda} S_{\mu\nu,\kappa\lambda} \delta_{\kappa\lambda}$ ; ( $\kappa, \lambda, \mu, \nu = x, y, z$ ). In a cubic crystal, only the two independent S components,  $S_{11}$  and  $S_{44}$  are existing, the determination of which the author attempts in this paper. A rocksalt sample of  $8 \times 8 \times 20 \text{ mm}^3$  which was subjected to linear compression in the directions  $[001]$ ,  $[110]$ , and  $[111]$ , served as a testpiece. The maximum load was  $66 \text{ kg/cm}^2$ . The magnetic field was always perpendicular to the direction of compression. As expected, the effect of the compression was very weak and

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S/056/61/040/003/010/031  
B102/B202

Nuclear magnetic resonance ...

showed up as a reversible decrease of the maximum on the absorption line without any noticeable broadening. The greatest decrease observed was 20%. The shape of the lines was Gaussian for the deformed as well as for the undeformed crystal. In order to determine the components of S, the author interrelates the decrease of the line maximum and the displacement of the satellite frequencies. On the one hand, the author obtains

$\Delta \nu_c = \pm \delta \nu_0 \sqrt{(A_0/A-1)}/2.4$ , where A and  $A_0$  denote the maxima of the line with and without deformation, respectively, and  $\delta \nu$  the line width between maximum and minimum;  $A \delta \nu^2 = A_0 \delta \nu_0^2$ . On the other hand, he obtains

$\Delta \nu_c = \pm (eQ/2h) \cdot H_H$  for  $\text{Na}^{23}$  with the nuclear spin  $I = 3/2$ ; Q is the nuclear quadrupole moment,  $H_H$  the field component acting upon the nucleus in the direction of the magnetic field. When the deformation is applied in the [001] direction,  $xx = yy = -\frac{1}{2} zz = \frac{1}{2} s_{11} (s_{12} - s_{11}) P$ , where denotes the load and s the elastic constant of the crystal;  $Q_{HH} = Q_{xx} = Q_{yy}$ . Deformation

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Nuclear magnetic resonance ...

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along  $[111]$  yields:  $q_{xx} = q_{yy} = -\frac{1}{2}q_{zz} = -\frac{1}{3}S_{44}s_{44}P$ , and deformation along  $[110]$ :

$$\varphi_{xx} = \left[ \frac{1}{4}S_{11}(s_{11} - s_{12}) - \frac{1}{2}S_{44}s_{44} \right] P, \quad \varphi_{yy} = -\frac{1}{2}S_{11}(s_{11} - s_{12})P,$$

$$\varphi_{zz} = \left[ \frac{1}{4}S_{11}(s_{11} - s_{12}) + \frac{1}{2}S_{44}s_{44} \right] P.$$

and  $q_{HH} = -\frac{1}{2}[q_{zz} + (q_{zz} + 2q_{xx})\cos 2\alpha]$ , where  $\alpha$  is the angle between the direction of the magnetic field and  $[001]$ . The experimental results agree with the theoretical predictions in all three cases. The numerical results are  $S_{11} = \pm 2 \cdot 10^{15}$  CGSE and  $S_{44} = \mp 0.5 \cdot 10^{15}$  CGSE. Finally, the author thanks M.I. Kornfel'd for discussions, O.M. Nilov and V.V. Sokolov for their help. There are 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors, Academy of Sciences USSR)

SUBMITTED: October 25, 1960

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26700  
S/C56/61/041/005/015/038  
B102/B108

94.7500 (1144,1482)

AUTHOR: Kornfel'd, M. I., Lemanov, V. V.

TITLE: Distortion of the NaCl lattice by  $\text{Ag}^+$ ,  $\text{Br}^-$  and  $\text{K}^+$  impurities

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41,  
no. 5(11), 1961, 1454 - 1460

TEXT: Nuclear magnetic resonance measurements were used to study the lattice distortions caused by impurity ions. The character and the amount of the distortions can be determined from an investigation of the quadrupole effects in this resonance. The interaction of the nuclear quadrupole moments with the electric field gradient causes a shift of the "satellite" frequencies which is proportional to the vicinity of the nucleus to the impurity ion. A "critical sphere" exists around this ion. For nuclei within it, the satellite frequency shift is greater than the half-width of the absorption line at the noise level. In order to determine the properties of this sphere and the lattice distortions at its boundaries, the authors measured the dependence of the lattice constant and of the intensity of the nuclear magnetic resonance absorption lines of

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26700  
S/056/61/041/005/015/038  
B102/B108

Distortion of the NaCl....

Na<sup>23</sup> on the concentration of the impurities AgCl, NaBr and KCl in NaCl single crystals. The maximum impurity concentrations were 4, 11 and 3 mole%, respectively. The lattice parameters were measured by A. I. Zaslavskiy and T. B. Zhukova by means of a PKY-114 (RKU-114) camera and Cu K<sub>α</sub> radiation, with an accuracy of  $\pm 3 \cdot 10^{-4}$  Å. The relative changes of the lattice parameters  $\Delta a/a_0$  were found to be linear functions of the impurity concentrations. The largest changes were observed for NaCl-KCl. The absorption lines of Na<sup>23</sup> in pure and in impurified samples were measured with an apparatus described in an earlier paper (V. V. Lemanov, PTE, 1, 126, 1961). The intensities of the absorption lines decreased exponentially with increasing impurity concentrations and approached the intensity of the central line, which was 40% of the total intensity for Na<sup>23</sup> with a nuclear spin of 3/2. With a further increase in concentration, also the central line was weakened, due to second-order quadrupole effects. These effects became evident at 3 mole% of KCl and 10 mole% of NaBr. For AgCl impurities, no decrease in the intensity of the central line was observed. The first parts of the curves  $J/J_0 = f(c)$  can be

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Distortion of the NaCl...

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S/056/61/041/005/015/038  
B102/B108

approached by straight lines. From their slope, the number  $n$  of  $\text{Na}^+$  ions within the critical sphere (radius  $R$ ) can be determined. The following was found:  $\text{Ag}^+$ :  $n=76$ ,  $R = 8.9 \text{ \AA}$ ;  $\text{Br}^-$ :  $n = 200$ ,  $R = 12.4 \text{ \AA}$ ;  $\text{K}^+$ :  $n = 460$ ,  $R = 16.7 \text{ \AA}$ .  $J/J_0$  as a function of the total volume  $nc$  of the critical spheres obeys a hyperbolic law and, at low impurity concentrations, is independent of the nature of the impurity.  $|\Delta a|/a_0 = f(nc)$  is independent of the nature of the impurity and has a linear course. The elastic lattice distortions are determined from the components of the  $S$  tensor which interrelates  $E$  and the elastic lattice deformations. The frequency shift of the satellite lines for quadrupole interaction is given by  $\Delta\nu = 3eQ(2m-1)\psi_{HH}/4I(2I-1)h$ , where  $I$  is the nuclear spin,  $Q$  the nuclear quadrupole moment and  $\psi_{HH}$  is the component of the field gradient in the direction of  $\vec{H}$ . With this formula,  $\psi_{HH}$  can be determined for nuclei situated at the boundary of the sphere.  $\psi_{HH}$  was found to be about  $10^{12}$  CGSE units. From this, the deformation at the boundary of the critical sphere was determined to be of the order of  $10^{-3}$ . The relative

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Distortion of the NaCl...

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Lattice deformation  $\epsilon$  at a distance  $r$  from the impurity ion was determined from the relation  $\epsilon = (a_n - a_0) a_0^{-2} r^{-3}$ ,  $a_0$  and  $a_n$  being the radii of the basic and of the impurity ion, respectively. For  $r = R$  the critical value of  $\epsilon$  was found to be  $3.95 \cdot 10^{-4} (\text{Ag}^+)$ ,  $2.40 \cdot 10^{-4} (\text{Br}^-)$  and  $0.73 \cdot 10^{-4} (\text{K}^+)$ . The authors thank O. M. Nilov and V. V. Sokolov for their assistance, I. A. Amantova, N. S. Volosatova, P. V. Usachev, and G. I. Bel'kov for analyses. There are 4 figures, 1 table, and 10 references: 4 Soviet and 6 non-Soviet. The four most recent references to English-language publications read as follows: T. J. Rowland. Phys. Rev. 112, 900, 1960; M. H. Cohen, F. Reif. Solid State Physics, 5, 321, 1957; H. Kawamura, E. Otsuka, K. Ishiwatari. J. Phys. Soc. Japan, 11, 1064, 1956; E. Otsuka, H. Kawamura. J. Phys. Soc. Japan, 12, 1071, 1957.

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors of the Academy of Sciences USSR)

SUBMITTED: June 17, 1961

Card 4/4

247600

S/181/62/004/009/037/045  
B104/B186

AUTHORS: Lemanov, V. V., and Smirnov, I. A.

TITLE: Thermal conductivity of NaCl single crystals with Ca impurities

PERIODICAL: Fizika tverdogo tela, v. 4, no. 9, 1962, 2611 - 2613

TEXT: If positive ions in the NaCl lattice are replaced by  $\text{Ca}^{2+}$ , then positive cation vacancies are formed. At room temperatures and below,  $\text{Ca}^{2+}$ -vacancy dipoles exist occurring in larger complexes. The effect of the decay of these complexes on the thermal conductivity of the crystals is studied when the temperature is increased. The NaCl- $\text{CaCl}_2$  crystals were grown from melts of pure substances by the method of Kiropulos. The heat conductivity was measured in the range between 400 and 800°K with pure NaCl and KCl single crystals used as standards. Results: Ca impurities cause a slight increase in the thermal resistivity of the crystals. In the range 100 - 300°K the additional resistivity caused by the impurity is independent of temperature. When the temperature rises

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Thermal conductivity of NaCl...

S/181/62/004/009/037/045  
B104/B186

to above 300°K the additional resistivity increases:  $\Delta R = A_1(-u/kT)$ , where  $u = 0.2$  ev. Below 300°K the additional resistivity is produced by phonon scattering from the complexes. Its increase above 300°K is associated with the decay of the complexes into dipoles. The cross section of phonon scattering from the dipoles is by approximately one order of magnitude higher than that of the scattering from neutral Ag impurities. There are 2 figures.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors AS USSR, Leningrad)

SUBMITTED: May 17, 1962

Card 2/2

S/056/62/043/006/009/067  
B154/B102

AUTHORS: Kornfel'd, M. I., Lemanov, V. V.

TITLE: On local distortions of a crystal lattice by impurity ions

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,  
no. 6(12), 1962, 2021 - 2023

TEXT: The dimensions of the distorted zones around  $Ag^+$ ,  $Br^-$ ,  $K^+$  impurities in the NaCl lattice have already been investigated by M. I. Kornfel'd and V. V. Lemanov (ZhETF, 41, 1454, 1961) by way of the critical sphere with the impurity ion in the center and fixed deformation on its surface. For  $I^-$ ,  $Li^+$ ,  $Rb^+$  the distorted-zone dimensions were determined in this paper. Basing on the theory of elasticity of continuous media, the range  $R$  of the deformation  $\epsilon$  from the center of the sphere is given by

$\epsilon = \epsilon_0 r_0^3 / R^3$  where  $\epsilon_0 = (r_n - r_0) / r_0$  is the deformation on the sphere's surface,  $r_0$  is the radius of a hollow sphere in the medium and  $r_n$  is the radius of a little sphere inserted in it.  $\epsilon$  depends on the relation between the elastic properties of the medium and the little sphere. If a

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On local distortions of...

S/056/62/043/006/009/067  
B154/B102

molecule consisting of the impurity ion and six neighboring ions with opposite sign is assumed to form the sphere, then the elastic properties of the crystals considered are nearly equal and  $\alpha \approx 1/2$  in all cases. The values of  $r_n$ , which are the ionic distances are taken from the Index to X Ray Powder Data File (ASTM, Philadelphia, 1959). For  $r_0(\text{NaCl})$

2.8201 Å is obtained. Thus the authors determined the following values for  $|E| \cdot 10^3$ : 0.18 ( $\text{Ag}^+$ ), 0.24 ( $\text{Br}^-$ ), 0.24 ( $\text{Li}^+$ ), 0.19 ( $\text{K}^+$ ), 0.23 ( $\text{I}^-$ ), 0.20 ( $\text{Rb}^+$ ). Good agreements between the calculations and experimental data are observed when the ionic distances of the corresponding lattice are used as characteristic dimensions. If the impurity ion is assumed to form the sphere then the results calculated will disagree with experiment. There is a table.

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors of the Academy of Sciences USSR)

SUBMITTED: July 7, 1962

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LEMANOV, V. V.

Dissertation defended for the degree of Candidate of Physicomathematical Sciences at the Technical Physics Institute imeni A. F. Lofe in 1962:

"Local Distortions of the Crystalline Lattice Near Impurity Ions."

Vest. Akad. Nauk SSSR. No. 4, Moscow, 1963, pages 119-145

LEMANOV, V.V.; SMIRNOV, I.A.

Thermal conductivity of sodium chloride single crystals with a calcium admixture. Fiz. tver. tela 4 no.9:2611-2613 S '62.  
(MIRA 15:9)

1. Institut poluprovodnikov AN SSSR, Leningrad.  
(Salt--Thermal properties)

EL'BAUM, K. [Elbaum, C.]; LEMANOV, V.V. [translator]

Substructures in crystals grown from the melt. Usp. fiz. nauk  
79 no.3:545-584 Mr '63. (MIRA 16:3)  
(Crystals--Growth)



L 63347-65 REC(h)-2/EPF(c)/EPI(1)/T FI-h IJP(c) CG/WW

ACCESSION NR: AP5017340

UR/0181/65/007/007/2249/2252

AUTHOR: Kornfel'd, M. I.; Lemanov, V. V.

TITLE: Compensation of bivalent metal impurities in alkali halide crystals

SOURCE: Fizika tverdogo tela, v. 7, no. 7, 1965, 2249-2252

TOPIC TAGS: nuclear magnetic resonance, crystal impurities

ABSTRACT: In studying the line width of  $\text{Na}^{23}$  nuclear resonance in NaCl as a function of temperature, a compensation effect was observed between bivalent cation impurities and bivalent anion impurities. The temperature dependence showed a very sharp reduction of line width in a certain temperature interval, which was attributed to diffusion of  $\text{Na}^+$  ions. Theory indicates that the temperature at which line narrowing occurs depends on the concentration of cation vacancies: the higher the concentration the lower the temperature. The introduction of monovalent impurities did not change the curve of line-width vs. temperature. The bivalent impurities  $\text{Ca}^{2+}$  and  $\text{CO}_3^{2-}$ , however, moved the curve toward lower and higher temperatures respectively, by amounts which increased with concentration. Theoretical calculations are made of cation vacancy concentrations for these impurities, and are used to ac-

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I 63347-65

ACCESSION NR: AP5017340

count for all experimental results. "A. S. Fedorov took an interest in this work".  
Orig. art. has: 2 equations, 2 figures, 1 table.

ASSOCIATION: Leningradskiy inzhenerno-stroitel'nyy institut (Leningrad Construction Engineering Institute)

SUBMITTED: 01Mar65

ENCL: 00

SUB CODE: SS, NP

NO REF SOV: 001

OTHER: 004

Card 2/2

L 23114-66 EWT(m)/EPF(n)-2/EWP(t) IJP(c) JD/JG

ACC NR: AP6006872

SOURCE CODE: UR/0181/66/008/002/0615/0616

AUTHOR: Lemanov, V. V.

ORG: Institute of Semiconductors, AN SSSR, Leningrad (Institut poluprovodnikov AN SSSR)

TITLE: On distortions of KCl crystals by impurities

SOURCE: Fizika tverdogo tela, v. 8, no. 2, 1966, 615-616

TOPIC TAGS: potassium chloride, nuclear magnetic resonance, crystal impurity, crystal lattice distortion, elasticity theory

ABSTRACT: This is a continuation of earlier studies of distortion of NaCl and NaF crystals by impurities (ZhETF v. 43, 2021, 1962 and others). The present investigation was devoted to KCl crystals grown from the melt by the Kiropoulos method. The intensity of the nuclear magnetic resonance absorption line of  $Cl^{35}$  was measured as a function of the impurity concentration with RYa 2301 apparatus. It was observed during the measurements that the intensity of the resonance in pure crystals grown from pure KCl is much lower than the theoretical intensity. This pointed to the presence of some impurities that distort the lattice. The presence of the impurity was confirmed by chemical analysis. Double recrystallization of the KCl, which reduced the Na impurity to one quarter of its initial value, nearly

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L 23114-66

ACC NR: AP6006872

doubled the resonance intensity. The experimentally determined dependence of the  $\text{Cl}^{35}$  resonance intensity on the impurity concentration was used to determine the number of Cl nuclei inside the distorted zone near the impurity ion. The relative displacements of the nearest neighbors of the impurities and the relative lattice deformation on the boundary of the distorted zone were calculated by elasticity theory. The lattice deformation was found to be practically constant and independent of the type of impurity, in agreement with the definition of the distorted zone given in the earlier papers. This confirms the applicability of elasticity theory for calculation of the distortion of the lattice by impurities, although some discrepancy arises in the case of the ions  $\text{F}^-$  and  $\text{Na}^+$ , the reasons for which were discussed by V. S. Mandel' (FTT v. 7, 3130, 1965). Orig. art. has: 1 formula and 1 table.

SUB CODE: 20/ SUBM DATE: 27Sep65/ ORIG REF: 003

Card 2/2 BLC

LEMANOVA, N.A.

Analysis of sterility phenomena in the males of hybrid *Coregonus lavaretus ludega* Pel. x *Coregonus* infr. *lodogesis* Prav. Dokl.  
AN SSSR 105 no.1:160-162 N '55. (MLRA 9:3)

1. Tsentral'naya laboratoriya osnov rybovedstva Glavrybvoda.  
Predstavleno akademikom Ye.N. Pavlovskim.  
(HYBRIDIZATION) (STERILITY IN ANIMALS) WHITEFISHES)

LEMANOWICZ, J.

"Mechanizing Surface Broaching", p. 92, (MSTWNIK, Vol. 27, No. 3, Mar. 1954,  
Warsaw, Poland)

SO: Monthly List of East European Accessions, (EEL), LC, Vol. 4, No. 5, May  
1955, Uncl.

MOYCHO, W.; GUBANSKI, M.; FOMADIS, B.; LEMANSKA, M.; WAJSBARD, E.

The occurrence of tobacco mosaic virus in tomatoes in Lodz and its neighborhood. Postepy nauk roln 7 no.1:79-82 Ja/F '60. (EEAI 9:10)

(Poland--Tomatoes)

(Mosaic disease)

(Viruses)

MIZERA, Antoni, mgr inz.; LEMANSKI, Wladyslaw, mgr inz.

New exhibition hall on the grounds of the International Poznan Fair. Inz i bud 19 no.2:55-59 F '62.

1. Biuro Projektow Budownictwa Przemyslowego, Poznan.



CZECHOSLOVAKIA / General and Specialized Zoology.  
Insects. Forest Pests

P

Abs Jour : Ref Zhur - Biol., No 17, 1958, No 78360

Author : Lemarie, J.

Inst : Not given

Title : Contribution to the Knowledge of the Mode of  
Life of the Pine Moth *Extella* (Herigia)  
*Dodecella* L.

Orig Pub : Zool. listy, 6, No 3, 225-233

Abstract : The pine moth, a pest of the buds in the pine  
sapling plantations of Bzenetsk (Czechoslovakia),  
damages cultures which are weak and founded on  
poor soils. It often attacks the pine-trees  
damaged by the European pine-shoot moth. From  
July to April, the caterpillars of the bud-and-  
shoot moth mine the needles. Mines (10-15mm.

Card 1/3

LEMARIE, M.

*Handwritten:* M. Lemarie

Results of statistical analysis of the production process of Dynocide. M. Felix and M. Lemarie. *Chem. Průmysl* 6, 363-7(1953).—Differences in biol. efficiency of Dynocide, an insecticide based on DDT, are not due to fluctuations in biol. testing but they are real, chiefly caused by insufficient homogenization of the mixt. if it contains wet talcum. Another factor causing variations is the mixing equipment. The "Lens" mixer gives a better product than does the "Venzleth" mixer. A substantial increase in production capacity can be attained if good homogenization takes place during the first stage of the pulverization process.

L. A. Helwich

LEMARIN'YE, K.N.

NOVOZHILOV, Nikolay Mikhaylovich, kand.tekhn.nauk; SUSLOV, Valeriy  
Nikolayevich, kand.tekhn.nauk; LEMARIN'YE, K.N., inzh., red.;  
GERASIMOVA, Ye.S., tekhn.red.

[Welding with consumable electrode in carbon dioxide] Svarka  
plaviashchimsia elektrodom v uglekislom gaze. Moskva, Gos.  
nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1958. 193 p.  
(Welding) (MIRA 11:5)  
(Protective atmospheres)

L 18559-63 EPF(c)/EWP(q)/EWT(m)/BDS AFETC/ASD Pr-4 JD/JG  
 ACCESSION NR: AP3003642 8/0135/63/000/007/0043/0043  
 AUTHORS: Petrov, A. V., (Candidate of Technical Sciences); Lenarin'ye, K. N. 63  
 (Engineer)  
 TITLE: All-Union State Standard 10157-62 "Argon, gaseous, pure"  
 SOURCE: Svarochnoye proizvodstvo, no. 7, 1963, 43  
 TOPIC TAGS: argon, specification, oxygen, nitrogen, moisture 18  
 ABSTRACT: According to the new GOST (All-Union State Standard) 10157-62, industrial argon will be distributed in grades A, B, and C. Grade A must be 99.99% pure and must contain no more than 0.003% oxygen and 0.01% nitrogen. Grade B must be 99.96% pure, with no more than 0.005% oxygen and 0.04% nitrogen. Grade C must be 99.90% pure, with no more than 0.005% oxygen and 0.10% nitrogen. Moisture content in all grades must not exceed 0.03 g/cm<sup>3</sup>. Recommendations are made as to which grade should be used in welding given metals and in doing what type of work. Procedures on testing for impurities are explained. The new standard went into effect July 1, 1963. Orig. art. has: 1 table.  
 ASSOCIATION: none  
 SUBMITTED: 00 DATE ACQ: 02Aug63 ENCL: 00  
 SUB CODE: EL NO REF SOV: 000 OTHER: 000  
 Card 1/1

LEMARIN'YE, K.N.

AUTHORS: Dianov-Klokov, V.I., Candidate of Physical-  
Mathematical Sciences, Kolbasov, V.A., Engineer,  
Lemarin'ye, K.N., Engineer 67-58 -2-11/26

TITLE: The Spectral Analysis of Nitrogen in Argon (Spektral'noye  
opredeleniye primesey azota v argone)

PERIODICAL: Kislorod, 1958, Nr 2, pp. 49-51 (USSR)

ABSTRACT: It is said in the introduction that this method has proved to be  
of practical use in Soviet plants. However, the apparatus used for  
this purpose have certain disadvantages as a result of which in-  
accurate results are obtained in individual cases. In order to pre-  
vent this, it is recommended in the course of this paper that the  
light sensitiveness of this apparatus be increased by summation of  
loads. In this case the individual pulses of the photocurrent are  
collected during the period of from 10-20 seconds in loading con-  
densers. Meanwhile, the luminescent spot produces a straight line,  
the "arrow", the angle of which can easily be computed. The os-  
cillographic tube "8 L039" has a screen with afterglow, so  
that the "arrow" can be conserved for 1 minute. Centering of the  
beam is brought about by means of two revolving deflection coils.

Card 1/2

The Spectral Analysis of Nitrogen in Argon

67-58-2-11/26

Rough adjustment of the two analyzer channels is carried out by switching over the loading condensers, and fine adjustment is brought about by diaphragming the slots before the photomultipliers. In the rectifier of the feed block ferroresonance stabilization is applied. Selenium rods (ABC-7-3P) serve as valves. In the case of particularly pure gases it is recommended to use a collection of suitable filters instead of spectrographs. There are 3 figures, 3 references, all Soviet.

AVAILABLE: Library of Congress

1. Nitrogen—Spectrum
2. Argon—Applications
3. Laboratory equipment—Operation

Card 2/2

LEMARIN'YE, K. P.

"Development of a Rational Technology and the Determination of Necessary Apparatus for the Production of Mushroom Mold Enzyme Concentrates." Cand Tech Sci, Moscow Technological Inst of the Food Industry, Min Higher Education USSR, Moscow, 1955. (IL, No 18, Apr 55)

SO: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (16).

LEMARIN'YE, K.P.

Production of high-active concentrated ferment preparations free  
from culture media. Biul.tekh.-ekon.inform. no.7:49-51 '58.

(Fermentation)

(MIRA 11:9)



ROGACHEV, V.I.; LEMARIN'YE, K.P.; ISAYEVA, Z.S.

Effect of high-temperature sterilization of short duration on the  
quality of canned foods. Kons. i ov. prom. 13 no.10:15-19 0 '58.  
(MIRA 11:10)

1. TSentral'nyy nauchno-issledovatel'skiy institut konservnoy  
i ovoshchesushil'noy promyshlennosti.  
(Food, Canned--Sterilization)

YASTREBOV, S.M.; MASOVER, A.M.; LEMARIN'YE, K.P., kand. tekhn. nauk, red.;  
BELIKOVA, L.S., red.; KISINA, Ye.I., tekhn. red.

[Sterilization of canned food] Sterilizatsiya konservov. Pod red.  
K.P.Lemarin'e. Moskva, Pishchepromizdat, 1961. 67 p.  
(MIRA 14:9)

(Food, Canned--Sterilization)

BARBAYANOV, Konstantin Aleksandrovich; LEMARIN'YE, Konstantin  
Petrovich; MAKAROVA, T.I., kand. tekhn. nauk, spets. red.;  
NOZDRINA, V.A., red.; SATAROVA, A.M., tekhn. red.

[Fish canning] Proizvodstvo rybnykh konservov. Moskva, Pishche-  
promizdat, 1961. 407 p. (MIRA 15:3)  
(Fish, Canned)

EXCERPTA MEDICA Sec.8 Vol.11/5 Neuro-Psychiat.May 58

~~LUBOTSKAYA-ROSSELS~~ E.M.

2435. PROTECTION OF THE INFANTILE NERVOUS SYSTEM (Russian text) -  
Lubotskaya-Rossels E.M. - DOS.VOSP. 1956, 9 (12-17)

As a knowledge of the peculiarities of the higher nervous activity of pre-school children is necessary for the proper conduct of all educational work in kindergartens, the author draws attention to some of them, especially the predominance of excitatory over inhibitory processes, and the marked inclination to irradiation of processes, especially of excitation. The instability of attention and the quick development of a state of inhibition in these children from prolonged and monotonous activity is also underlined. The author also mentions the factors which predispose to the development of nervousness in children, and the measures for its prevention, and attaches especially great importance to a proper paedagogic approach to the child.

(S)

LEMARIN'YE, K.P.

Characteristics of the thermal sterilization of canned food  
packaged in aluminum tubes. Kons.i ov.prom. 17 no.7:7-9 JI '62.  
(MIRA 15:6)

1. TSentral'nyy nauchno-issledovatel'skiy institut konservnoy  
i ovoshchesushil'noy promyshlennosti.  
(Food, Canned--Sterilization)

LEMARIN'YE, K.P.; ROGACHEV, V.I.; GORDON, Yu.I.

Aseptic canning of food products. Kons. i ov. prom. 17  
no.8:14-18 Ag '62. (MIRA 17:1)

1. TSentral'nyy nauchno-issledovatel'skiy institut konservnoy  
i ovoshchesushil'noy promyshlennosti.

L 7028-66

ACC NR: AP5026830

SOURCE CODE: UR/0286/65/000/017/0116/0116

AUTHOR: Lamarin'ye, K. P.; Drobny, B. V.; Chebalak, A. N.; Miroshkin, F. Ya.; Petryanov-Sokolov, I. V.; Basmanov, P. I.; Farber, L. D.; Khalupnaya, L. I.

ORG: none

TITLE: An installation for aseptic preservation of liquid and puree-type foodstuffs in large storage tanks. Class 53, No. 174520

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 17, 1965, 116

TOPIC TAGS: food technology, food product machinery, food sanitation

ABSTRACT: This Author's Certificate introduces: 1. An installation for aseptic preservation of liquid and puree-consistency food products in large storage tanks. The unit consists of interconnected sterilizer pipelines made according to Author's Certificate No. 168108, a vacuum cooler, hermetically sealed tanks equipped with locking devices made according to Author's Certificate No. 168109, and bacteriological filters. The unit is designed for continuous operation and for preventing admission of any unsterilized product. The unit is equipped with a discharge reservoir and with an intermediate collector connected to the reservoir and to the sterilizer. 2. A modification of this installation in which connections are simplified by using a disconnectable pipe between the hermetically sealed tanks and the vacuum cooler, and a portable pump with a flexible hose for unloading the food products from the tanks.

Card 1/2

UDC: 664.8.03

L 7028-66

ACC NR: AP5026830

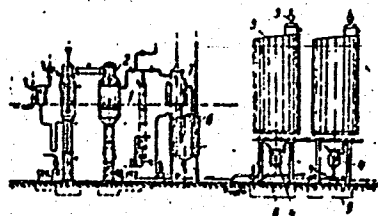


Fig. 1. 1--sterilizer; 2--vacuum cooler; 3--hermetically sealed tanks; 4--locking devices; 5--bacteriological filters; 6--discharge reservoir; 7--intermediate collector; 8--disconnectable pipe; 9--portable pump

SUB CODE: GO,IE,LS/

SUBM DATE: 16Mar64/

ORIG REF: 000/

OTH REF: 000

Card 2/2



L 41032-65 ENT(d)/ENT(m)/ENT(w)/T-2 EM  
ACCESSION NR: AP5008577

S/0286/65/000/006/0113/0113

AUTHORS: Zuyov, M. A.; Razin, G. M.; Krylov, V. M.; Volkov, A. F.; Timoshin,  
Yo. P.; Sterlikov, V. P.; Gozulov, S. A.; Lomasov, V. B.; Kirolyubov, G. P.

TITLE: Test stand for creating impact overloads. Class 62, No. 169407

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 6, 1965, 113

TOPIC TAGS: impact testing

ABSTRACT: This Author Certificate presents a test stand for creating impact overloads. The stand contains a truss with controlling cables, a hoisting device, a platform for the investigated object, a cable with a suspension system, a cut-off mechanism, a braking mechanism, shock absorbers, and instruments for measuring the platform drop rate. To increase the safety of the experiment and to exclude the effect of the prescribed height on the free fall of the platform, the stand is provided with a contactless mechanism for setting the height (see Fig. 1 on the Enclosure). It consists of a transmitting selsyn connected by a flexible shaft to the shaft of an electric tackle drum, a receiving selsyn placed in the frame of the mechanism, and a mechanism reductor. A setting indicator with a knob and contact, a sliding indicator with a contact, a height indicator scale,

Card 1/3

L 41032-65

ACCESSION NR: AP5008577

and a stop relay are connected in the magnetic starter circuit of the electric tackle. Orig. art. has: 1 diagram.

ASSOCIATION: none

SUBMITTED: 02Jan64

ENCL: 01

SUB CODE: ME

NO REF SOV: 000

OTHER: 000

Card 2/3

LEMAYEV, V.; AFANAS'YEVA, N.

Children's clubs organized by apartment houses offices in Gorgiy.  
Zhil.-kom. khoz. 10 no.12:14-16 '60. (MIRA 13:12)

1. Nachal'nik gorodskogo zhilishchnogo upravleniya, g. Gor'kiy  
(for Lemayev).
  2. Inspektor gorodskogo zhilishchnogo upravleniya,  
g. Gor'kiy (for Afanas'yeva).
- (Gorkiy--Children's clubs)

NOSOV, A.K.; LEMAYEVA, A.M.

Reciprocity in ontogenesis of potatoes of the maternal tuber and the plant growing from it. Izv.AN Turk.SSR no.1:47-55 '55. (MLRA 9:5)

1. Institut biologii AN Turkmenskoy SSR.  
(Potatoes)

USSR/Physiology of Plants - Photosynthesis.

I.

Abs Jour : Ref Zhur - Biol., No 15, 1958, 67796

Author : Lemayeva, A.M.

Inst : Academy of Sciences Turkmen SSR.

Title : Photosynthesis in Cotton with Relation to Its Development.

Orig Pub : Izv. AN Turkmen SSR, 1957, No 1, 59-63.

Abstract : The intensity of photosynthesis in cotton was studied by Nosov's gravimetric method (Izvestiya AN TSSR, 1951, No 3). The 24-hour course of photosynthesis was determined for the budding, flowering, and maturing phases. The degree to which the stomata were open was determined by Molish's method. The photosynthesis intensity was studied simultaneously in the leaves of the lower, middle, and upper layers of the main stalk. The maximum photosynthesis intensity was observed between 6 o'clock and 11

Card 1/2

LEMAYEVA, A.M.

Changes in the physiological processes of a withering cotton  
plant. Izv.AN Turk. SSR no.5:86-91 '57. (MIRA 10:10)

1. Institut botaniki AN Turkmenskoy SSR.  
(Plants, Effect of aridity on)  
(Turkmenistan--Cotton)

LEMAYEVA, A.M.

Dynamics of hydrocarbons and nitrogen compounds in the ontogenesis  
of the cotton plant. Izv. AN Turk. SSR no.5:39-45 '58.  
(MIRA 11:12)

1. Institut botaniki AN Turkmenskey SSR.  
(Cotton)

LEMAYEVA, A.M.

Effect of potassium fertilizers on photosynthetic productivity and yields of fine-fiber cotton plants. Izv. AN Turk. SSR. Ser. biol. nauk no.4:25-30 '61. (MIRA 14:10)

1. Institut botaniki AN Turkmenskoy SSR.  
(PLANTS, EFFECT OF POTASSIUM ON)  
(PHOTOSYNTHESIS) (COTTON—FERTILIZERS AND MANURES)



LEMAYEVA, A.M.

Effect of copper on some physiological and biochemical processes and  
yield of the fine-fiber cotton. Izv. AN Turk. SSR. Ser. biol. nauk no.  
4:3-6 '64. (MIRA 17:11)

1. Institut botaniki AN Turkmeneskoy SSR.

LEMAYEVA, A.M.

Role of photosynthetic intensity and productivity in the rate of  
ripening of fine-fiber cotton. Izv. AN Turk. SSR. Ser. biol. nauk  
no. 249-14 1966. (MIRA 18:5)

Institut botaniki AN Turkmenskoy SSR.

LEMAZHIKHIN, B. [K.] Biophysics Lab, Physiol Inst im I. P. Pavlov, AS USSR

"Molecular Structure of Oriented Proteins in Tissues"

SOURCE: Dok AN, Vol 70, No 4, 1950

USSR/Human and Animal Physiology - Blood. Formed Elements.

T-3

Abs Jour : Ref Zhur - Biol., No 18, 1953, 84011

Author : Lemazhikhin, B.K., Frank, G.M.

Inst : Institute of Biological Physics, AS USSR

Title : Determining the Size of Erythrocytes in Connection with Problems of Biologic Effects of Ionized Radiation by Methods of Light Diffraction.

Orig Pub : Tr. In-ta biol. fiz. AN SSSR, 1955, 1, 276-287

Abstract : Blood was taken from ear veins of rabbits. Then, it was dissolved in an isotonic Ringer solution, admixed with sodium citrate and placed into a 0.1 mm deep glass cuvette. In order to achieve better diffraction, erythrocytes (E) must adhere to the bottom of the cuvette after they have set (8-10 minutes). The animals were irradiated with 800 r. Erythrocyte counts pointed to a deepseated reactive

Card 1/3

USSR/Human and Animal Physiology - Blood. Formed Elements.

T-3

Abs Jour : Ref Zhur - Biol., No 18, 1953, 84011

leucopenia. Observations showed that 2 hours after irradiation and within an interval of 3 days, E become somewhat smaller in size. After the 10th day, E size increased progressively (7.2-7.4  $\mu$ ) and reached 7.5-7.6  $\mu$  on the 15th day. At this point, the clearly marked diffraction disappeared, a fact which bore testimony of a far advanced anisocytosis. E diffraction indicators, existing 3 days before irradiation, served as controls. These data were obtained by diffraction microphotography. A more practical arrangement which consists in the most simple optical system using photoelements and galvanometers, permits to determine E sizes according to ring diameters, whereas the degree of anisocytosis may be approximately determined according to the correlation of maximum and minimum photoelectric currents. Control experiments with preparations of diversified solution strengths (as compared to norm), showed the margin of error to be insignificant.

Card 2/3

LEMAZHIKHIN, B. K. and G. M. Frank

Determination of the Dimensions of Erythrocytes in Connection with the Problem  
of Biological Action of Ionizing Radiation  
Trudy Instituta Biologicheskoy Fiziki, No 1, 1956  
S916, 5 Mar 1956, p49

Describes a method to be used in diagnosing injury produced by ionizing  
radiation.

17(4)  
AUTHORS:

SOV/20-128-1-50/58  
Razumova, L. L., Lemazhikhin, B. K., Lebedev, L. A.,  
Pen'kina, V. S.

TITLE:

Some Differences Observed in the X-Ray Study of Keratin From  
Feathers

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 1, pp 186-189  
(USSR)

ABSTRACT:

The macro structure of coverts and supporting feathers (wing-feathers and rudder-feathers of the tail) shows certain differences depending on the function of the concerned feathers. The kind of flight also has a certain influence on the structure. The authors tried to answer the question whether the function of the feathers also has an influence on the molecular structure. Characteristic features of the molecular structure can be investigated by means of an X-ray diffraction method. X-ray photographs made (with a sufficient solvent power) of the keratin of feathers (Fig 1) are characterized by clearness and richness of reflexes unusual for fibril albumins. The authors succeeded in getting some information regarding the dependence of the keratin structure on the existence of amino acids and

Card 1/3

SOV/20-128-1-50/58

Some Differences Observed in the X-Ray Study of Keratin From Feathers

also with regard to the role of S-S and hydrogen compounds in the structural packing. X-Ray examinations of three test series were carried out by means of X-ray cameras with collimator with a diameter of 0.1 mm. A micro tube for focusing of the Institut biofiziki AN SSSR (Institute of Biophysics AS USSR) was used. The X-ray was directed perpendicularly on the surface of the feathers. The investigations showed that the structure of wing feathers on non-flying birds (ostrich) is the same as that of coverts of flying birds. It is not as orderly as the structure of the wing feathers strained by flying. This fact proves a connection between the molecular structure of feathers and their function. A dependence of the molecular structure on the kind of flight was not found. The authors thank the staff members of the Zoologicheskiy muzey Moskovskogo gosudarstvennogo universiteta (Zoological Museum of the Moscow State University), Professor N. A. Gladkov, A. M. Sudilovskaya, M. V. Vasil'yeva, the staff members of the Institut morfologii zhivotnykh (Institute of the Morphology of Animals), Professor G. S. Shestakov, T. L. Borodulin, and the staff members of Moskovskiy zoopark (Moscow Zoological

Card 2/3

SOV/20-128-1-50/58

Some Differences Observed in the X-Ray Study of Keratin From Feathers

Gardens), R. I. Afonskaya, M. P. Kagayev, for their assistance in selecting the specimens. There are 3 figures and 7 references.

ASSOCIATION: Institut biologicheskoy fiziki Akademii nauk SSSR (Institute of Biological Physics of the Academy of Sciences, USSR)

PRESENTED: April 23, 1959, by V. N. Kondrat'yev, Academician

SUBMITTED: April 22, 1959

Card 3/3



LEMAZHIKHIN, B.K.; LEBEDEV, L.A.

Design of a demountable microfocus X-ray tube with a variable  
focus. Prib.i tekhn.eksp. no.1:136-138 Ja-F '60.  
(MIRA 13:6)

1. Institut biofiziki AN SSSR.  
(Electron tubes)

MEL'NIKOV, L.A.; RAZUMOVA, L.L.; LEMAZHIKHIN, B.K.

Mechanisms of muscle contraction (based on X-ray data). Dokl.  
AN SSSR 151 no.4:955-958 Ag '63. (MIRA 16:8)

1. Institut biologicheskoy fiziki AN SSSR. 2. Chlen-korrespondent  
AN SSSR (for Frank). (MUSCLES--MOTILITY)

RAZUMOVA, L.I.; LEMAZHINSKIY, B.K.; MEL'NIKOV, I.I.; FRANK, G.M.

X-ray study of structural reconstructions in a striated muscle following changes in its length. Dokl. AN SSSR 157 no.3:688-691 JI '64. (MIRA 17:7)

1. Chlen-korrespondent AN SSSR (for Frank).

VAZINA, A.A.; LEMAZHIKHIN, B.K.; FRANK, G.M.

Discrete dispersion of rays at small angles on a concentrated actin  
solution. Biofizika 9 no.2:237 '64. (MIRA 17:12)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

VAZINA, A.A.; LEMAZHIKHIN, B.K., FRANK, G.M.

Discovery of an actin polymer differing from the F-form. Dokl.  
AN SSSR 159 no.4:921-922 D '64 (MIRA 18:1)

1. Institut biologicheskoy fiziki AN SSSR. 2. Chlen-korrespondent AN SSSR (for Frank).

RAZUMOVA, L.L.; MEL'NIKOV, L.A.; LEMAZHIKHIN, B.K.; FRANK, G.M.

Shortening glycerinated muscles with a damaged two-dimensional  
lattice of filaments. Biofizika 10 no.1:194 '65. (MIRA 18:5)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

LYUDKOVSKIY, B.G.; FENNEL'YANOV, V.B.; UMAZHEKHIN, B.K.

Study of the optic properties of the squid giant axon relaxed  
and at different phases of excitation. *TSitologiya* 7 no.4:  
520-530 J1-Ag '65. (MIRA 18:9)

1. Laboratoriya zhivyykh struktur Instituta biologicheskoy  
fiziki AN SSSR, Moskva.

VAZINA, A.A.; LEMAZHIKHIN, B.K.; FRANK, G.M.

Liquid crystalline structure in nonoriented gels and F-actin solutions. Biofizika 10 no.3:420-423 '65. (MIRA 18:11)

1. Institut biologicheskoy fiziki AN SSSR, Moskva. Submitted July 6, 1964.



LEMAZHIKHIN, B. K., ANDREYEVA, N. S., and VIZINA, A. A. (USSR)

"The Employment of Narrow-Angle X-Ray Dispersion method for  
Examination of Protein Solutions."

Report presented at the 5th International Biochemistry Congress,  
Moscow, 10-16 Aug 1961

RAZUMOVA, L.L.; LEMAZHIKHIN, B.K.; POLANIKOV, I.I.

X-ray identification of I-meromyosin in a muscle structure.  
Biofizika 9 no. 1:136-137 '64. (MIRA 17:7)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

LEMBECK, F.

On the problem of central activity of substance P. Cesk.fysiol.  
10 no.2:131-134 Mr '61.

1. Farmakologicky ustav University, Styrsky Hradec.  
(CENTRAL NERVOUS SYSTEM physiol.)

LEMBERANSKAYA, A.Yu.

Functional state of the blood coagulation system in healthy children. Azerb.med.zhur. 40 no.1:21-25 Ja '63. (MIRA 16:3)

1. Iz kafedry gospiatal'noy pediatrii (zav. - zasluzhennyy deyatel' nauki, dotsent A.N. Amirdzhanov) i kafedry fakul'tetskoy khirurgii (zav. - chlen-korrespondent AN Azerbaydzhanskoy SSR, prof. F.A. Efendiyev) Azerbaydzhanskogo meditsinskogo instituta imeni Narimanova (rektor - zasluzhennyy deyatel' nauki, prof. B.A. Eyvazov).

(BLOOD--COAGULATION)

LEMBERANSKAYA, A.Yu.

State of some indices of the blood coagulation system in children  
with Botkin's disease. Izv. AN Azerb. SSSR. Ser. biol. i med.  
nauk no. 6:93-96 '63. (MIRA 17:5)

NAZARLI, S.Kh.; LEMBERANSKAYA, S.D.

Study of gynecological diseases in women working in petroleum  
industry. Azerb. med. zhur. no.6:65-69 Je '61. (MIRA 14:6)  
(ORDZHONIKIDZE DISTRICT—PETROLEUM WORKERS—DISEASES AND HYGIENE)  
(GENERATIVE ORGANS, FEMALE—DISEASES)

L 17696-63

ENP(j)/EPF(c)/EWT(m)/BDS

AFTC/ASD/APGC

Pc-4/Pr-4

RM/MN

ACCESSION NR: AP3004248

S/0152/63/000/006/0065/0067

69

AUTHORS: Shikhalizade, P. D.; Lamberanskaya, S. I.

TITLE: Preparation of polymeric petrochemical resins from light oil fractions obtained by petroleum pyrolysis

SCOURCE: IVUZ. Neft' i gaz, no. 6, 1963, 65-67

TOPIC TAGS: polymerization, polymer, unsaturated hydrocarbon, light oil, ferric chloride, silica gel, catalyst, aluminum chloride, resin

ABSTRACT: In continuation of an earlier work on polymerization of unsaturated hydrocarbons of light oil obtained from pyrolysis of petroleum fractions, it was found that the activity of used ferric chloride-silica gel catalyst is increased somewhat by removing deposited polymer through washing with a benzene-alcohol mixture. However, the results are not of practical interest because the yield falls sharply with repeated use of the catalyst, i.e. 26.8, 12.5, and 6.7%. Further experiments showed that aluminum chloride catalyst gives the best yield and the lightest-colored resin. Orig. art. has: 2 tables.

ASSOCIATION: Azerbaydzhanskiy institut nefti i khimii im. M. Azizbekova.  
(Azerbaydzhan Institute of Petroleum and Chemistry )

Card 1/2

*LEMBERANSKIY, A.D.*  
LEMBERANSKIY, A.D.; ISMAYLOV, R.G.

Developments in the use of technical methods and machinery in  
Azerbaijan petroleum refineries. Azerb.neft.khoz. 36 no.11:27-30  
N '57. (MIRA 11:2)

(Azerbaijan--Petroleum--Refining)



ALIKHANOV, F.N.; ARUSHANOV, N.A.; AKHUNDOV, V.Yu.; ALIZADE, M.A.; AZIZBEKOV, Sh.A.; FAGIROV, M.A.; VEZIROV, S.A.; VOLOBUYEV, V.R.; EKKILOV, F.M.; GADZHIYEV, N.M.; GUSEYNOV, D.M.; GUSEYNOV, I.A.; DADASHEV, E.K.; DADASHZADE, M.A.; DALIN, M.A.; ISFENDEROV, M.A.; KAZIYEV, M.A.; KARAYEV, A.I.; KASHKAY, M.S.; KEL'DYSH, M.V.; KERIMOV, A.G.; ~~LEMBERANSKIY, A.D.~~; MAMEDOV, G.K.; MEKHTIYEV, M.R.; MIRZOYEV, S.A.; NAGIYEV, M.F.; NESRULLAYEV, N.I.; ORUDZHEV, A.K.; RADZHANOV, R.A.; RUDNEV, K.N.; SADYKHOV, R.N.; SEMENOV, N.N.; TOPCHIYEV, A.V.; TOPCHIBASHEV, M.A.; TAIROVA, T.A.; KHALILOV, Z.I.; MFENDIYEV, G.Kh.; SHUKYUROVA, Z.Z.

IUsif Geidarovich Mamedaliev; obituary. Dokl. AN Azerb. SSR 17  
no.12:1123-1126 '61. (MIRA 15:2)  
(Mamedaliev, Iusif Geidarovich, 1905-1961)

ALIKHANOV, E.N.; ARUSHANOV, N.A.; AKHUNDOV, V.Yu.; ALIZADE, M.A.; AZIZBEKOV, Sh.A.; BAGIROV, M.A.; VEZIROV, S.A.; VOLOBUYEV, V.R.; VEXILOV, F.M.; GADZHIYEV, N.M.; GUSEYNOV, D.M.; GUSEYNOV, I.A.; DADASHEV, K.K.; DADASHZADE, M.A.; DALIN, M.A.; ISKENDEROV, M.A.; KAZIYEV, M.A.; KARAYEV, A.I.; KASHKAY, M.S.; KEL'DYSH, M.V.; KERIMOV, A.G.; LEMBERANSKIY, A.D.; MAMEDOV, G.K.; MEKHTIYEV, M.R.; MIRZOYEV, S.A.; NAGIYEV, M.F.; NASRULLAYEV, N.I.; OGUDZHEV, A.K.; RADZHABOV, R.A.; RUDNEV, K.N.; SADYKHOV, R.N.; SEMENOV, N.N.; TOPCHIYEV, A.V.; TOPCHIBASHEV, M.A.; TAIROVA, T.A.; KHALILOV, Z.I.; EFENDIYEV, G.Kh.; SHUKYUROVA, Z.Z.

IUsif Geidarovich Mamedaliev. Azerb.khim.zhur. no.6:5-6 '61.  
(MIRA 15:5)  
(Mamedaliev, IUsif Geidarovich, 1905-1961)

KASUMOV, Imran; LEMBERANSKIY, Alish, red.

Baku. Baku, Bakinskii Gor. Sovet, 1964. 1 v.  
(MIRA 18:4)

LEMBERANSKIY, D. B.

Lemberanskiy, D. B.: "The plastics of the amputation stump of the lower extremity in the light of its power of support and the prosthesis," (Preliminary report), Trudy III Zakavkazsk. s"yezda khirurgov, Yerevan, 1948 (on cover: 1949), p. 366-373

SO: U-5240, 17 Dec. 53, (Letopis 'zhurnal 'nykh Statey, No. 25, 1949).

LEMBEZHANSKIY, D.N., dotsent; SEIDOVA, A.A., mladshiy nauchnyy sotrudnik

Surgical treatment of fractures of the femur by nailing. Vest.khir.  
77 no.10:133 0 '56. (MLRA 9:12)

1. Iz Azerbaydzhanskogo instituta ortopedii i vosstanovitel'noy  
khirurgii, Baku.  
(FEMUR--FRACTURE)

LEMBERANSKIY, D.N., dots.

Analysis of accidents occurring in offshore oil operations. Ortop.,  
travm. protez. 19 no.1:51-52 Ja-P '58. (MIRA 11:4)

1. Iz kafedry ortopedii i travmatologii (zav. - dotsent D.N.  
Lemberanskiy) Bakinskogo instituta usovershenstvovaniya vrachey  
(dir. - M.I.Aliyev)

(ACCIDENTS, INDUSTRIAL  
among oil workers at sea (Rus))

GOL'DRING, L.A.; LEMBERANSKIY, F.D.

Electric power supply and lighting of power-driven hoisting  
units for the current repair of oil wells. Mash. i neft.  
obor. no.11:23-30 '64. (MIRA 1961)

1. Azerbaydzhanskiy nauchno-issledovatel'skiy institut  
neftyanogo mashinostroyeniya.

LEMBERANSKIY, F.D.; GOL'DRING, L.A.

Explosionproof lamp for mobile drilling rigs and production installations. Mash. i neft. obor. no.7:28-32 '65.

(MIRA 18:12)

1. Azerbaydzhanskiy nauchno-issledovatel'skiy institut neftyanogo mashinostroyeniya.



LEMBERSKIY, V.B.

S/277/63/000/004/010/013  
A004/A127

AUTHORS: Barenboym, A.B., Lemberskiy, V.B.

TITLE: Operation analysis and calculation method of static freon bearings with jet balancing

PERIODICAL: Referativnyy zhurnal. Otdel'nyy vypusk. 48. Mashinostroitel'-nyye materialy, konstruktsii i raschet detaley mashin, no. 4, 1963, 50, abstract 4.46.316. (Tr. Odessk. tekhnol. in-ta pishch. i Kholodil'n. prom-sti, 1962, v. 11, 49 - 57)

TEXT: The authors suggest a method of calculating gas-static freon bearings with jet balancing, developed on the basis of the theory of similitude, in which experimental data are utilized. This calculation method renders possible to determine the basic characteristics of the bearing for any operation media and can also be used for calculating radial thrust bearings and thrust bearings with jet balancing.

[Abstracter's note: Complete translation.]  
Card 1/1

V. Pastukhov

LEMBERG, A. ~~AK~~

VITENBERGS, Guntis; GRANTS, Elmars; ROZENBERGA, R., red.; LEMBERG, A.,  
red.

[Is the incidence of cancer increasing?] Vai saslimstiba ar vezi  
klust biezaka? Riga, LPSR Zinatnu akademijas izdevnieciba,  
1961. 42 p. (MIRA 15:2)

(LATVIA--CANCER)

LEMBERG, A. A.

29259 Puti i dostizheniya sovetskoy rentgenologii na Ukraine. Voprosy onkologii i rentgenologii, No 1-2, 1948, s. 185-94 .

SO: Letopsi' Zhurnal'nykh Statey, Vol. 39, Moskva, 1949

LEMBERG, A. A.

29260 Metodika gistorentgeno-grafii v izuchenii legochnoy tkani pri norme i patologii.  
Voprosy onkologii i rentgenologii, No 1-2, 1948, s. 206-12

SO: Letopsi' Zhurnal'nykh Statey, Vol. 39, Moskva, 1949

LEMBERG, A. A.

29266 Gistorentgenograficheskiye dannyye pri rannikh fazakh infektsionnykh artritov. Voprosy onkologii i rentgenologii, No 1-2, 1948, s. 276-83

SO: Letopsi' Zhurnal'nykh Statey, Vol. 39, Moskva, 1949

LEMBERG, Aleksandr Abramovich

(Ukrainian Inst for the Advanced Training of Physicians). Academic degree of Doctor of Medical Sciences, based on his defense, 25 November 1954, in the Council of the Naval Medical Academy, of his dissertation entitled: "Meastases of Cancerous Tumours into the Bone System (Clinico-Roentgenological and Hysto-Roentgenographical Study)."

Academic degree and/or title: Doctor of Sciences

SO: Decisions of VAK, List no. 16, 2 Jul 55, Byulleten' MVO SSSR, No. 15, Aug 56, Moscow, pp 5-24, Uncl. JPRS/NY-537

USSR/Human and Animal Physiology (Normal and Pathological) T  
The Effect of Physical Factors. Ionizing Irradiation

Abs Jour : Ref Zhur Biol., No 6, 1959, 27197

Author : Lemberg, A.A., Fastyuchenko, O.V.

Inst : -

Title : On Some Changes of Metabolism in Experimental Animals in  
Irradiation of the Head with X-Rays.

Orig Pub : V sb.: Vopr. luchevoy terapii, Kiyev, Gosmedizdat USSR,  
1956, 202-207

Abstract : The heads of rabbits were irradiated with doses of 700 r  
and 500 r. After various time intervals, the animals  
were killed and the total amount of nucleic acids and,  
separately, RNA and DRNA in the brain was determined.  
In blood serum taken from the auricular vein before and  
after irradiation, the amount of ribonucleodeppolimerase  
and desoxyribonucleinodopolimerase was determined. Even  
in irradiation with a dose of 700 r, the changes in the

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USSR/Human and Animal Physiology (Normal and Pathological) T  
The Effect of Physical Factors. Ionizing Irradiation

Abs Jour : Ref Zhur Biol., No 6, 1959, 27197

amount of RNA and DRNA in the brain did not exceed the  
limits of error. The activity of nucleodepolimerases  
in the blood decreased weakly 3-5 days after irradiation.  
-- B.K. Khuskivadze

Card 2/2

Country : USSR  
CATEGORY : General Problems of Pathology. Tumors. Nervous System  
Abb. Jour. : REBiol., No. 12 1958, No. 56380  
AUTHOR : Lezhnev, P.A., Ledenov, S.B., Genes, V.S.  
IND. :  
TITLE : The Influence of X-irradiation of the Head of the Rat on the Development of Transplanted Sarcoma  
ORIG. PUB. : Collection: Vopr. Rachevoy Terapii. Kiev, Kommed-izdat USSR, 1956, 206-220  
ABSTRACT : Irradiation of the head of rats one to 20 days prior to transplantation of the 35-1 sarcoma with 100-600 r influenced the growth of the tumor, predominantly by way of accelerating it. --  
L.V. Gol'shevskaya

CARD: 1/1



USSR/General Problems of Pathology - Tumors. Immunity.

U.

Abs Jour : Ref Zhur - Biol., No 21, 1958, 98197

Author : Mazurenko, H.P., Lemberg, A.A.

Inst : -

Title : Joint Effect of Smallpox Vaccine Virus and X-Rays on  
Inoculation of Carcinoma of Mice.

Orig Pub : Vopr. onkologii, 1957, 3, No 2, 189-190

Abstract : Cancer cells (CC) from an ascitic fluid with a neurovaccine virus adapted to them (which was passed 6 times through carcinoma of mice) were introduced into mice. CC were in contact with virus 2 1/2 hours. In other animals, CC which were subjected to 500-2000 r were injected. In the 3rd series, CC were subjected to the influence of both factors. The tumors in the 1st series "took" with intraperitoneal introduction in 5 of 9 mice, with subcutaneous - in 7 to 10 mice. In the 2nd series, correspondingly in 4 and 8 out of 8 and in all 10 (with 1000-500 r). With

Card 1/2

LEMBERG, A.A.

LEMBERG, A.A., prof. (Khar'kov)

Achievements and developments in Soviet clinical roentgenology and  
radiology. Klin.med. 35 no.10:79-89 0 '57. (MIRA 11:2)  
(RADIOLOGY,  
in Russia, progr. (Rus))

ALAPIN, G.Ya.; LEMBERG, A.A.

Pneumopericystography in the diagnosis of bladder diseases. Urologia  
25 no. 4:27-31 J1-Ag '60. (MIRA 14:1)  
(BLADDER—RADIOGRAPHY)

LEMBERG, A.A., prof. (Khar'kov, Pushkinskaya ul., d.82)

Some problems in the X-ray study of occupational changes. Vest.  
rent. 1 rad. 36 no.5:9-16 S-0 '61. (MIRA 15:1)

1. Iz kafedry rentgenologii i meditsinskoy radiologii (zav. - prof.  
A.A.Lemberg) Ukrainskogo instituta usovershenstvovaniya vrachey  
(dir. - dotsent I.I.Ovsiyenko). (BONES\_\_DISEASES)  
(OCCUPATIONAL DISEASES) (DIAGNOSIS, RADIOSCOPIC)  
(JOINTS\_\_DISEASES)